

Outreach Education

Black Canyon of the Gunnison National Park
Curecanti National Recreation Area

National Park Service



Grade 4, Pre-Visit Activity, "Colorado Geology"

Name: _____

Instructions: Read the paragraph. Then fill in the blanks on the back of the page.

Colorado Geology

There are many different national parks in the United States, and each protects different resources. Some national parks have unique rock formations. Scientists that study rocks are called geologists. Geology is the study of the Earth and its rocks and minerals. The outer layer of the Earth, or its crust, is made of rocks and minerals. Rocks are made of minerals. Minerals naturally occur in the earth's crust. There are three types of rocks, and they are called igneous, sedimentary, and metamorphic rocks.



Igneous rocks are formed from hot, molten, or melted rock called magma. Magma that erupts from a volcano onto the Earth's surface is called lava.

Sedimentary rocks form from layers of sediment. Sediments are pieces of rock, including pebbles, sand, mud, and clay. Many years ago, layer upon layer of sand, mud, and clay accumulated on the bottom of ancient oceans. Over time, the pressure of these layers caused them to harden into sedimentary rock.

Metamorphic rocks are rocks that have been changed from either igneous or sedimentary rock by extreme heat and pressure. This type of metamorphosis occurs when rocks get buried deep in the Earth's crust. All three types of rocks can be found in Colorado.

Geologists can identify rocks and minerals based on their characteristics, such as their color, how hard they are and whether or not they're magnetic. You will learn to identify them, too!

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Instructions: Fill in the blanks, using words from the paragraphs on the other side.

- 1) A _____ is a person who studies the Earth.
- 2) Pebbles, sand, mud, and clay are examples of _____.
- 3) There are three types of rocks. They are called _____, _____, and _____ rocks.
- 4) The Earth's _____ is made of rocks and minerals.

Instructions: Find a rock that you like. Write a few sentences about your rock and why you chose it. What color is it? Is it rough or smooth? Is it shiny or metallic like a quarter, or not? Draw a picture of it in the box.

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Name: _____

Mineral Guide

Mineral Name	Color	Magnetism	Luster	Streak	Hardness
1. Chromite (<i>kroh' – mite</i>)	Black	no	non-metallic	Brown	5 ½
2. Graphite (<i>graf' – ite</i>)	Grey to black	no	non-metallic	Grey to black	1 to 2
3. Pyrite (<i>pie' – rite</i>)	Brassy yellow	no	metallic	Greenish-black	6 to 6 ½
4. Siderite (<i>sid' – er -ite</i>)	Black	no	non-metallic	Brown	6
5. Magnetite (<i>mag' – ne -tite</i>)	Black	yes	non-metallic	Black	5 ½
6. Hematite (<i>hee' – mah- tite</i>)	Brownish-red	no	earthy	Reddish-brown	2 ½
7. Limonite (<i>lie' – moh- nite</i>)	Brownish-yellow	no	earthy	Yellowish-brown	1 ½ to 4
8. Galena (<i>gah – lee' – nah</i>)	Lead-grey, silvery	no	metallic	Grey	2 ½
9. Quartz (<i>kwards</i>)	Colorless, white	no	glassy	None	6 to 7
10. Calcite (<i>kal' – site</i>)	Colorless, white	no	glassy	Powdery white	3

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Mineral Mystery

Description (color)	Magnetism (yes/no)	Luster (metallic, earthy, glassy, or non-metallic)	Streak (color left on tile)	Hardness (see below)	Mineral Name (turn your paper over and find a match!)

Estimating Hardness

Moh's Scale of Hardness

1. Talc (softest)
2. Gypsum
3. Calcite
4. Magnetite
5. Apatite
6. Orthoclase
7. Quartz
8. Topaz
9. Corundum
10. Diamond (hardest)

Use these items to test hardness:

Fingernail = 2 ½
Penny = 3 ½
Glass = 5 ½

Example:

If you can scratch your fingernail with a mineral, the mineral is harder than 2 ½.

If a mineral leaves a scratch on the glass plate, the mineral is harder than 5 ½.

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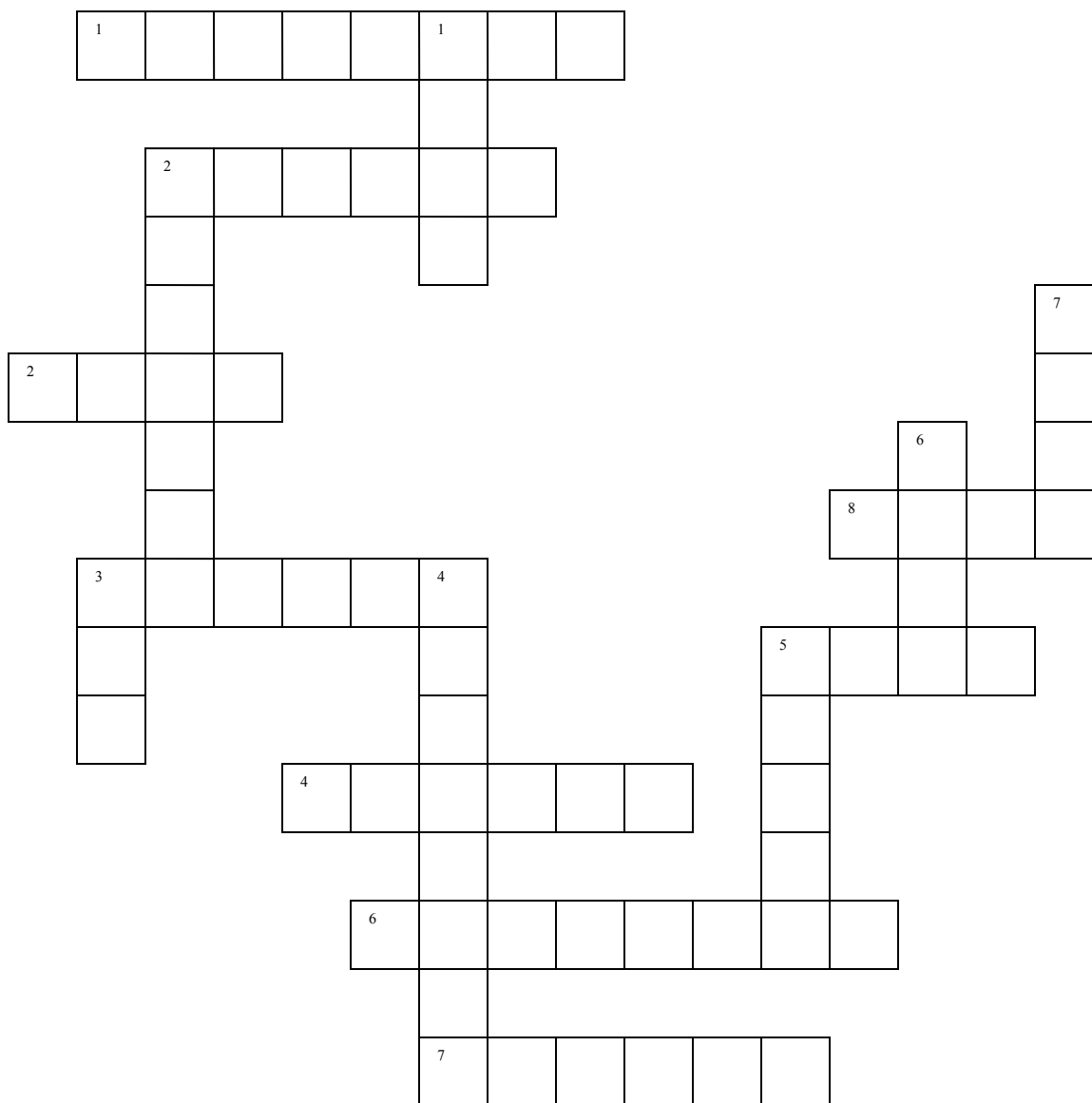
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Grade 4, Post-Visit Activity, "Colorado Geology"

Name: _____



Across

1. Had its start as a mining supply town
2. The first inhabitants of the Gunnison area
3. Another word used for gold panning
4. Prices dropped in 1893
5. Used to make fine jewelry
6. Limestone is used to make this material to surface sidewalks
7. Gold was first discovered in this city (our state capital)
8. Digging tunnels into the earth is called hard _____ mining

Down

1. One of the main materials mined near Gunnison
2. Gunnison is located in the Colorado _____ Belt
3. Used to find gold in streams
4. Helped to bring miners and supplies to Gunnison
5. Abandoned mining towns are called _____ towns.
6. Black substance used as an energy source
7. Miners use this to break apart rocks